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(54) Braking handle

(57) A braking handle (1) for simultaneous braking and guidance of a material in the form of a web being unrolled from a roll (3) comprises two semi-circular cross-section shanks (6, 7) articulated to each other, one end of which is intended to be inserted into a tubular core (2) of a roll (3) of a web material. By squeezing together the portions (9, 10) of the shanks outside of the tubular core, the portions (11, 12) located inside the core will be pressed outwards towards the walls of the core and exert friction against the walls, so that the rotation of the core is braked. The articulated joint (8) between the shanks is made of a semi-rigid material, and one of the shanks is provided with lugs (13) pointing towards the other shank and arranged near the articulated joint.

FIG.1

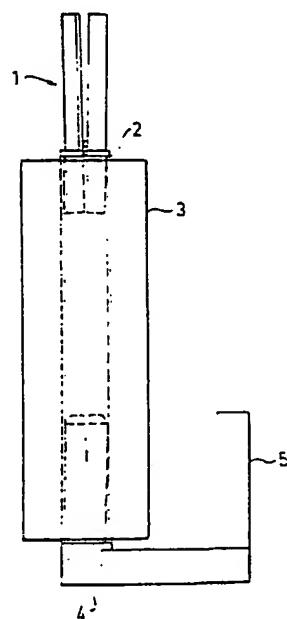
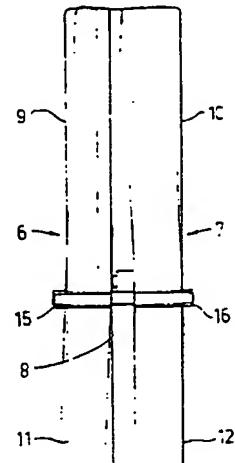


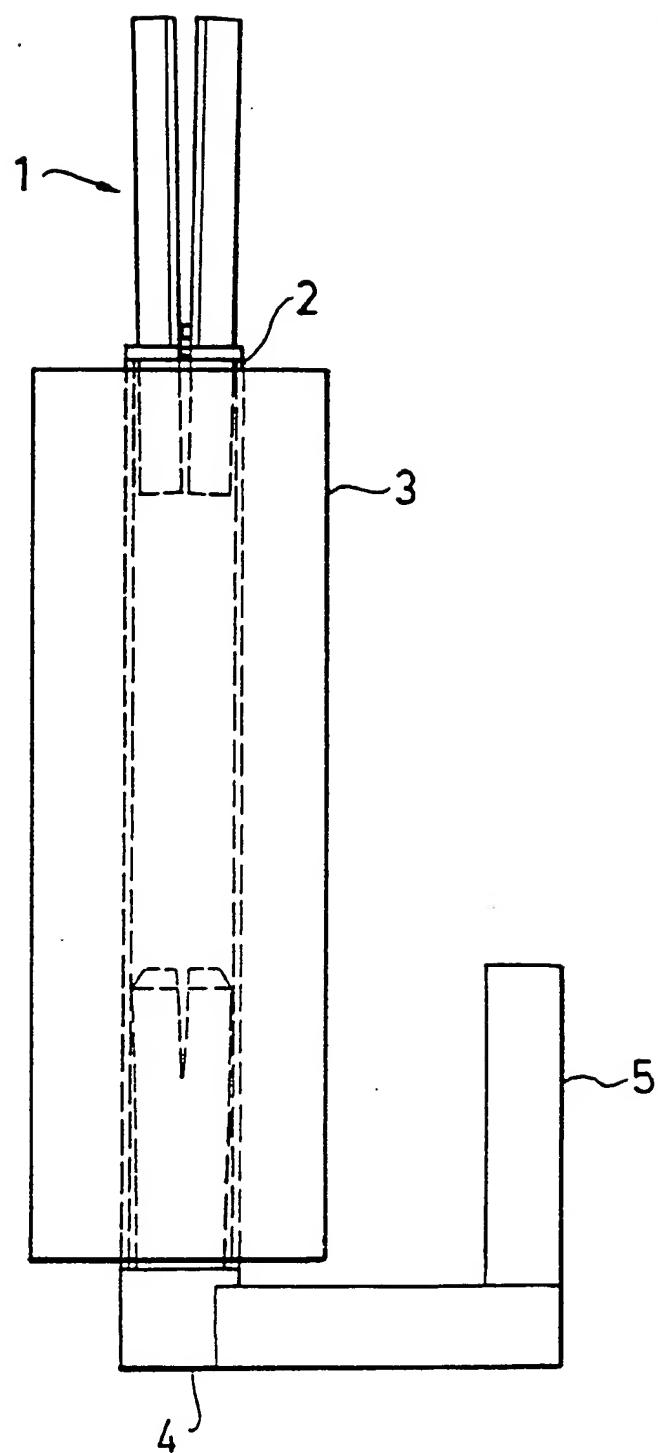
FIG.2



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FIG.1

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FIG.2

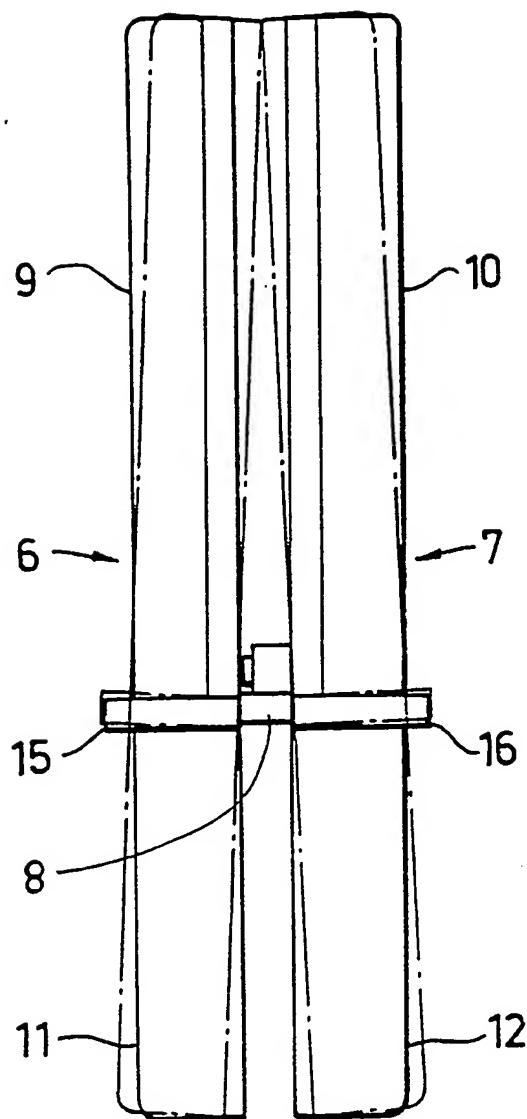
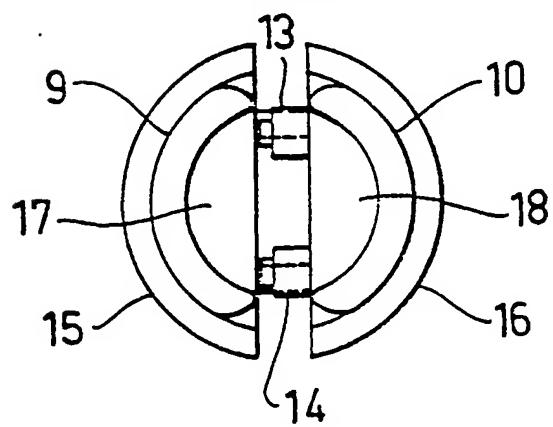


FIG.3



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BRAKING HANDLE

This invention relates to a braking handle for braking the unrolling of a material in the form of a web, such as a plastics film, from a roll of the material. At the same time, the braking handle serves as a guide for the roll in the unrolling operation.

Such a braking handle is primarily intended for use in the wrapping of articles with a stretch film of a plastics material. Such wrapping has been widely used for packages on pallets. The user attaches one end of a film web to the load to be wrapped and then walks around the load simultaneously unrolling the film web. For bigger loads, the user walks around it several times with the turns displaced vertically so that the whole load is covered. As the film used adheres to itself, the finished package is held well together provided that the film has been rolled off with a certain tension so that the various layers adhere well to each other. The tension of the film should also be varied in the wrapping process so that the tensile stress in the film will be higher when wrapped around corners than when covering flat surfaces of the load.

When the film is unrolled from a supply roll, it is therefore required that the rotation of the roll can be braked in a suitable way so that a suitable tension is obtained. Furthermore, this braking force should be variable so that a tension can be provided that is well adapted to the shape of the wrapped load. In order to achieve this, a number of braked unrolling devices are already known.

Thus, U.S. patents 4 102 513 and 4 166 589 disclose unrolling devices where the roll of plastics film is arranged on a through-going shaft with end pieces resting against the ends of the roll. The end pieces can be pressed together by means of a screw or excenter device so that they press axially against the ends of the roll and consequently brake its rotation. U.S. patent 4 522 348 describes an unrolling device where the roll is also placed on a through-going shaft with a handle at each end and where an annular part is made to expand by means of a mechanical link system, to press against the inner wall of a tubular core of the roll and to exert a braking effect in this way. The construction of all these known devices is quite complicated and therefore their manufacture is expensive. Moreover, they require that the roll be arranged on a through-going shaft before use and be fixed to this shaft relative to end sections of varying design. This is

also complicated and timeconsuming. Also, the complicated mechanical transmission of the braking force makes it difficult for the user to feel and finely adjust the necessary braking effect.

U.S. patents 4 179 081 and 4 484 717 show unrolling devices where a shaft is fixedly connected to the roll and rotates with it. The required braking force is achieved by the user squeezing manually one or two sleeves or rings arranged around the shaft at one or both of its ends and brakes its rotation in this way. These devices are simple in their construction and handling but require a considerable manual strength from the user.

According to the invention, there is provided an apparatus for rotatably supporting a roll of a material web and for braking rotation thereof, comprising a braking handle and a roll bracket, the braking handle comprising first and second shanks articulated to each other at a joint and each having a semicircular cross-section, the shanks having inner portions for insertion in the roll and outer portions which, when squeezed together, cause the inner portions to move away from each other and press against the inside of the roll, the articulated joint comprising a semi-rigid material, the first shank being provided with at least one lug

ext nding towards the second shank so as to act as a stop to limit movement when the outer portions are squeezed together, the roll bracket comprising a substantially U-shaped member having a first limb for insertion in the roll and a second limb for use as a handle.

The invention will be further described, by way of example, with reference to the accompanying drawings, in which :

Figure 1 shows a braking handle constituting a preferred embodiment of the invention introduced into a roll of a web material;

Figure 2 is a plan view of the braking handle of Figure 1 in two different positions; and

Figure 3 shows the braking handle of Figure 1 as seen from above.

Figure 1 shows how a braking handle 1 is partly introduced into a tubular core 2, indicated by broken lines, of a roll 3 of a web material, especially a plastics film. In order to further hold the roll and control its rotation, a roll guide bracket 4 with a handle 5 is introduced into the other end of the tubular

core 2. This roll guide bracket is preferably U-shaped with a handle 5 substantially parallel to the part inserted in the core 2 and arranged at a suitable distance from the core part.

No through-going shaft for the roll is required and the roll need not be clamped between two end pieces. Neither the braking handle 1 nor the roll bracket 4 should be fixedly connected with the roll and follow it in its rotation. Because of this, replacement of a roll is a very quick and simple process.

Figure 2 is a lateral view of the brake handle in greater detail and Figure 3 shows the same braking handle as seen from above. The handle consists of two shanks 6 and 7 which each have a semi-circular cross-section. The two shanks are connected to each other via an articulated joint 8. Moreover, the shanks 6 and 7 are divided into two handle portions 9, 10, respectively, on one side of the joint 8 and two brake portions 11, 12, respectively, on the other side of the joint. The brake portions 11 and 12 are intended to be introduced into the tubular core of the roll and the brake handle is prevented from being introduced too far into the tubular core by flanges 15 and 16 which are arranged about on the level of the joint 8.

When the braking handle has been inserted into the core of a roll and a braking effect is desired, the two portions 9 and 10 of the handle are squeezed together, as shown by the chain dot lines. The two brake portions 11 and 12 will then be moved outwards at the same time, as is also shown by the chain dot lines, and press against the inside of the core so that the friction between the brake portions and the core increases and the rotation of the core is braked in this way. The stronger the two handle parts are squeezed together, the stronger the brake portions will press against the core inside and the stronger the braking effect will be. Thus, in this way the braking effect can be adjusted at any time by the user to what is required. As the joint 8 is located closer to the end of the handle to be introduced into the core than to the end of the shank portions to be squeezed together, a lever effect will be obtained as the handle portions of the shanks are longer than the brake portions. Thus, a smaller compression force is required from the handle portions than the braking force exerted by the brake portions against the inside of the tubular core and the use of the braking handle will thus not require any considerable manual strength from the user.

The articulated joint 8 need not take up any great bending angles. Therefore it can be made of a

semi-rigid material such as a suitable plastics material, for instance polypropylene. In such cases the joint can be made as two pins arranged with a close fit in corresponding holes in each of the shanks 6 and 7 and holding these together. Thus, the articulation will then arise by bending in the joint material as such. The limited flexibility of the pins is sufficient to give the articulation effect required in connection with the small bending angles needed. A certain elasticity of the joint is desirable so that the braking effect ceases when the squeezing of the handle portions is released.

A pair of lugs 13, 14 on one of the two shanks serves as stop means when the two handle portions are squeezed together. In the preferred embodiment of the joint 8 indicated above, it is then avoided that the pins are compressed such that the brake portions cannot be pressed outwards as strongly as desired. These lugs 13, 14 are then made as pins of a non-resilient material such as a metal or rigid plastics. The lugs 13, 14 should be located close to the locations of the articulating pins 8.

The outside of at least the two brake portions 11 and 12 can be made or treated such that their friction properties are enhanced. For example, the surfaces can be roughened or knurled in some suitable pattern.

The two shanks can each be manufactured in the form of a pipe divided in the longitudinal direction which at the location of the joint 8 and the shoulders 13 is preferably provided with a transversal wall 17 and 18. This wall is then made with a suitable thickness to provide an attachment of the joint and the lugs. The shanks can be made of some suitable plastics material such as a thermosetting resin or a thermoplastic resin and can be prepared by means of any conventional process, for example injection moulding or compression moulding, which are well-known to those skilled in the art.

CLAIMS :

1. An apparatus for rotatably supporting a roll of a material web and for braking rotation thereof, comprising a braking handle and a roll bracket, the braking handle comprising first and second shanks articulated to each other at a joint and each having a semicircular cross-section, the shanks having inner portions for insertion in the roll and outer portions which, when squeezed together, cause the inner portions to move away from each other and press against the inside of the roll, the articulated joint comprising a semi-rigid material, the first shank being provided with at least one lug extending towards the second shank so as to act as a stop to limit movement when the outer portions are squeezed together, the roll bracket comprising a substantially U-shaped member having a first limb for insertion in the roll and a second limb for use as a handle.
2. An apparatus substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

3. A braking handle for simultaneous guidance and braking of a material web when being unrolled from a roll, comprising two shanks articulated to each other and having substantially semi-circular cross-sections for insertion together partly into a cylindrical tubular core of the roll such that, when two shank portions located outside the core are moved towards each other, two shank portions located inside the core are moved outwards and press against the inside of the core exerting friction, so that the rotation of the roll is braked, and act as a shaft pin for the roll, an articulated joint between the two shanks comprising a semi-rigid material, one shank being provided with lugs pointing towards the other shank and acting as a stop means when the two shank portions located outside of the core are squeezed together, the handle for guidance of rotation of the roll further comprising a roll bracket for insertion into the other end of the tubular core and having a bent U-shaped handle substantially parallel to the core.
4. A braking handle as claimed in Claim 3, in which the two shanks are provided on their outsides with flanges for limiting insertion of the shanks into the tubular core.

5. A braking handle as claimed in Claim 3 or 4, in which the outsides of at least the two shank portions to be inserted into the tubular core are provided with enhanced friction properties.
6. A braking handle as claimed in any one of claims 3 to 5, in which the joint between the two shanks is located closer to the end of the handle that is to be inserted into the core than to the end of the shank portions to be squeezed together.